STONE ELEMENTARY SCHOOL (PWS 6360009)
SOURCE WATER ASSESSMENT FINAL REPORT

May 30, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Source Water Assessment for Stone Elementary School, Stone, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The Stone Elementary School (PWS #6360009) drinking water system is classified as a non-community, non-transient water system. The drinking water system consists of one well source. The well serves approximately 35 persons and is located on the school's property.

The potential contaminant source within the delineation capture zones includes a campground. Additionally, Stone Reservoir, Deep Creek, and Stone Road are also potential contaminant sources that cross the delineated capture zones. If an accidental spill occurred from any of these corridors, inorganic chemical contaminants, volatile organic chemical contaminants, synthetic organic chemical contaminants, or microbial contaminants could be added to the aquifer system. A complete list of potential contaminant sources is provided with this assessment (Table 1).

For the assessment, a review of laboratory tests was conducted using the Idaho Drinking Water Information Management System (DWIMS) and the State Drinking Water Information System (SDWIS). In November 1995, total coliform bacteria were detected at three locations in the distribution system (girl's lavatory, kitchen sink, and boy's bathroom sink). Subsequent samples have not detected total coliform bacteria in the distribution system. The inorganic chemicals arsenic, barium, cadmium, chromium, fluoride, mercury, nitrate, and sodium have been detected in the drinking water, but at levels below the maximum contaminant level (MCL) for each chemical. Arsenic has been measured in the well in concentrations of 9 micrograms per liter in November 1998 and 6 micrograms per liter in September 2001. No volatile organic chemicals or synthetic organic chemicals have been detected in the drinking water.

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, i.e. nitrates, arsenic), volatile organic contaminants (VOCs, i.e. petroleum products), synthetic organic contaminants (SOCs, i.e. pesticides), and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

The final susceptibility rankings for the well are moderate for inorganic, volatile organic, synthetic organic, and microbials contaminants. System construction scores rated high and hydrologic sensitivity scores rated moderate. Potential contaminant inventory and land use scores were moderate for inorganic, volatile organic, synthetic organic, and low for microbials.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For Stone Elementary School, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). No potential contaminants (pesticides, paint, fuel, cleaning supplies, etc.) should be stored or applied within 50 feet of the well. Land uses within most of the source water assessment area are outside the direct jurisdiction of the Stone Elementary School. Therefore partnerships with state and local agencies, industrial and commercial groups should be established to ensure future land uses are protective of ground water quality. Educating employees and the public about source water will further assist the system in its monitoring and protection efforts.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture and the Oneida County Soil and Water Conservation District.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR STONE ELEMENTARY SCHOOL, STONE, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is included.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Stone Elementary School (PWS #6360009) drinking water system is classified as a non-community, non-transient water system located in Oneida County (Figure 1). The system consists of one well source that provides drinking water to approximately 35 persons. In November 1995, total coliform bacteria were detected at three sample locations (girl's lavatory, kitchen sink, and boy's bathroom sink) in the distribution system. Subsequent samples have not detected total coliform bacteria in the distribution system. The inorganic chemicals (IOCs) arsenic, barium, cadmium, chromium, fluoride, mercury, nitrate, and sodium have been detected in the drinking water, but at levels below the maximum contaminant level (MCL) for each chemical. Arsenic has been measured in the well in concentrations of 9 micrograms per liter (µg/L) in November 1998 and 6 µg/L in September 2001. No volatile organic chemicals (VOCs) or synthetic organic chemicals (SOCs) have been detected in the drinking water.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a pumping well) for water in the aquifer. Washington Group International (WGI) was contracted by DEQ to define the public water system's zones of contribution. WGI used a conceptual computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Black Pine – Curlew Valley hydrologic province in the vicinity of the Stone Elementary School. The computer model used site specific data, assimilated by WGI from a variety of sources including operator records, well logs (when available) and hydrogeologic reports. A summary of the hydrogeologic information from the WGI is provided below.

Hydrogeologic Conceptual Model

The Black Pine – Curlew Valley hydrologic province contains 266 square miles, with 96 percent of the total area located in Oneida County and 4 percent located in Cassia County. The entire province is located within the larger Basin and Range physiographic province. It is characterized by high, steep-sided mountain ranges that trend in a north-south direction and are made up of limestone, dolomite, quartzite, and sandstone (Chapman and Young, 1972, p. 10). These Paleozoic rocks have undergone considerable structural deformation and, as a result, are complexly folded, fractured, and jointed. Faults, joints and fracture zones, bedding planes, and solution cavities in the carbonate rocks provide local channels through which rainfall and snowmelt can be absorbed and transmitted underground (Bolke and Price, 1969, p. 10). Intermontane deposits are composed of Tertiary and Quaternary lakeshore deposits, volcanics alluvium, and colluvium.

The aquifers within the Curlew Valley can be divided into two broad categories: valley fill and older consolidated rocks. The valley fill is composed of unconsolidated to semiconsolidated sediments and assorted volcanic rocks of Quaternary to Tertiary age (Baker, 1974, p. 11). The oldest of the valley-fill deposits is a thick sequence of tightly bedded, predominantly tuffaceous continental sedimentary rocks and assorted volcanic rocks of late Tertiary age. This deposit is referred to as both the Salt Lake Formation (in Utah and Idaho) and as the Payette Formation (only in Idaho). These alluvial and lacustrine deposits and intercalated volcanic rocks form the main ground water reservoir in Curlew Valley (Bolke and Price, 1969, p. 11). The consolidated rocks of Paleozoic and Precambrian age, which form the bulk of the mountain ranges surrounding the valley, are of only slight economic importance as aquifers, although they may contribute substantial amounts of recharge to the aquifers in the valley fill (Baker, 1974, p. 11).

The maximum thickness of the valley fill is not explicitly known because the contact with the underlying Tertiary rocks is not recognized in the logs of wells that fully penetrate the valley fill (Bolke and Price, 1979, p. 11). In the Holbrook area the thickness exceeds 5,000 feet (Baker, 1974, p. 13).

Curlew Valley area is divided into two drainage basins above the town of Holbrook. The western basin is drained by Rock Creek, and the eastern arm is drained by Deep Creek (Figure 1). Below the junction with Rock Creek, the channel of Deep Creek is dry during most months.

About 3 miles south of Holbrook, a group of springs (variously called Deep Creek Springs, Big Springs, and Holbrook Springs) discharges in the channel of the creek. These springs have a steady flow of 25 to 30 cubic feet per second (Chapman and Young, 1972, p. 1). Although the springs appear in the channel of Deep Creek, the temperature and the quality of the water suggest that the source of the springs is water from the consolidated rocks of the Sublett Range rather than from valley fill (Baker, 1974, p. 35).

About 4 miles downstream from the springs, Curlew Dam impounds the water of the creek for irrigation in the Stone, Idaho-Snowville, Utah area. The southern half of Curlew Valley has undergone significant irrigation well development since 1953 (Chapman and Young, 1972, pp. 1). When Curlew Dam is full, the reservoir extends to within a few hundred feet of Holbrook Springs. Releases from the dam and ground water inflow from the valley fill make Deep Creek a perennial stream from the dam to a small impoundment about 7 miles southwest of the point where the stream crosses into Utah. The amount of water released from the dam is "small," and the water in the stream disappears into the ground within a few miles (Baker, 1974, p. 8).

From considerations of geologic and geographic features, chemical quality of water, and hydraulic head, three shallow ground water flow systems can be distinguished within the Curlew Valley. Each of these flow systems contains many interconnected beds with varying hydraulic properties, but each can be treated as a hydrologic entity (Baker, 1974, Plate 3, p. 13). These flow systems are referred to as the Kelton flow system, the Juniper-Black Pine flow system, and the Holbrook-Snowville flow system. The PWS wells in the Black Pine - Curlew Valley hydrologic province produce water from the Holbrook-Snowville flow system. The Kelton flow system is located entirely in Utah.

Recharge to the Holbrook-Snowville flow system comes primarily from precipitation on the east side of the Sublett Range, the southeast end of the Deep Creek Mountains, the west side of the Blue Springs Hills, and the west side of the North Promontory Mountains, which together bound the Holbrook arm in Idaho (Baker, 1974, p. 28). Estimated annual precipitation varies with elevation and ranges from 12 inches to more than 25 inches (Baker, 1974, Plate 1 and p. 29). Annual recharge from precipitation over the 176,700 acres that comprise the Holbrook-Snowville flow system in Idaho is 44,000 acre-feet or 3 inches (Baker, 1975, p. 29). This value includes areal recharge on the valley floor, as well as infiltration into bedding planes and joints in the carbonate bedrock along the valley margin.
Discharge from the aquifer is by (1) spring discharge, (2) pumpage, (3) underflow to Utah, (4) seepage to Deep Creek, and (5) consumptive use by plants.

An aquifer test conducted in the Curlew Valley in 1972 provided transmissivity estimates for the valley-fill aquifer that ranged from 30,000 to 60,000 gal/day/ft using pumping well data and up to 4,260,000 gal/day/ft using observation well data (Chapman and Young, 1972, p. 37). The average transmissivity of the aquifer is believed to be approximately 150,000 to 250,000 gal/day/ft based on data collected during the pumping well test and specific capacity results (Chapman and Young, 1972, p. 37). This range is supported by a constant rate aquifer test that was conducted in 1970 a few miles north of Snowville and also by specific capacity data from a well about 4 miles south of the pumping test area. Analysis of drawdown data from this constant rate test resulted in estimates of transmissivity ranging from 149,610 to 164,571 gal/day/ft. The transmissivity estimate based on analysis of specific capacity data was 142,130 gal/day/ft (Baker, 1974, p. 30).

Ground water in the Curlew Valley is unconfined in the northern part of the valley and leaky artesian near the Idaho-Utah border (Baker, 1974, p. 28). The ground water flow direction is generally south. The hydraulic gradient varies from approximately 100 feet per mile (ft/mile) (0.019) in the northern end of the valley to 8 ft/mile (0.0015) toward the center of the valley (Chapman and Young, 1972, pp. 40, 44). Variations are caused by heterogeneities and local areas of recharge or discharge. The gradient flattens near Holbrook as the combined result of the aquifer having greater cross-sectional area and higher permeability. The gradient also flattens near Curlew Dam as the result of recharge to the ground water system from the dam into permeable gravels (Chapman and Young, 1972, p. 44).

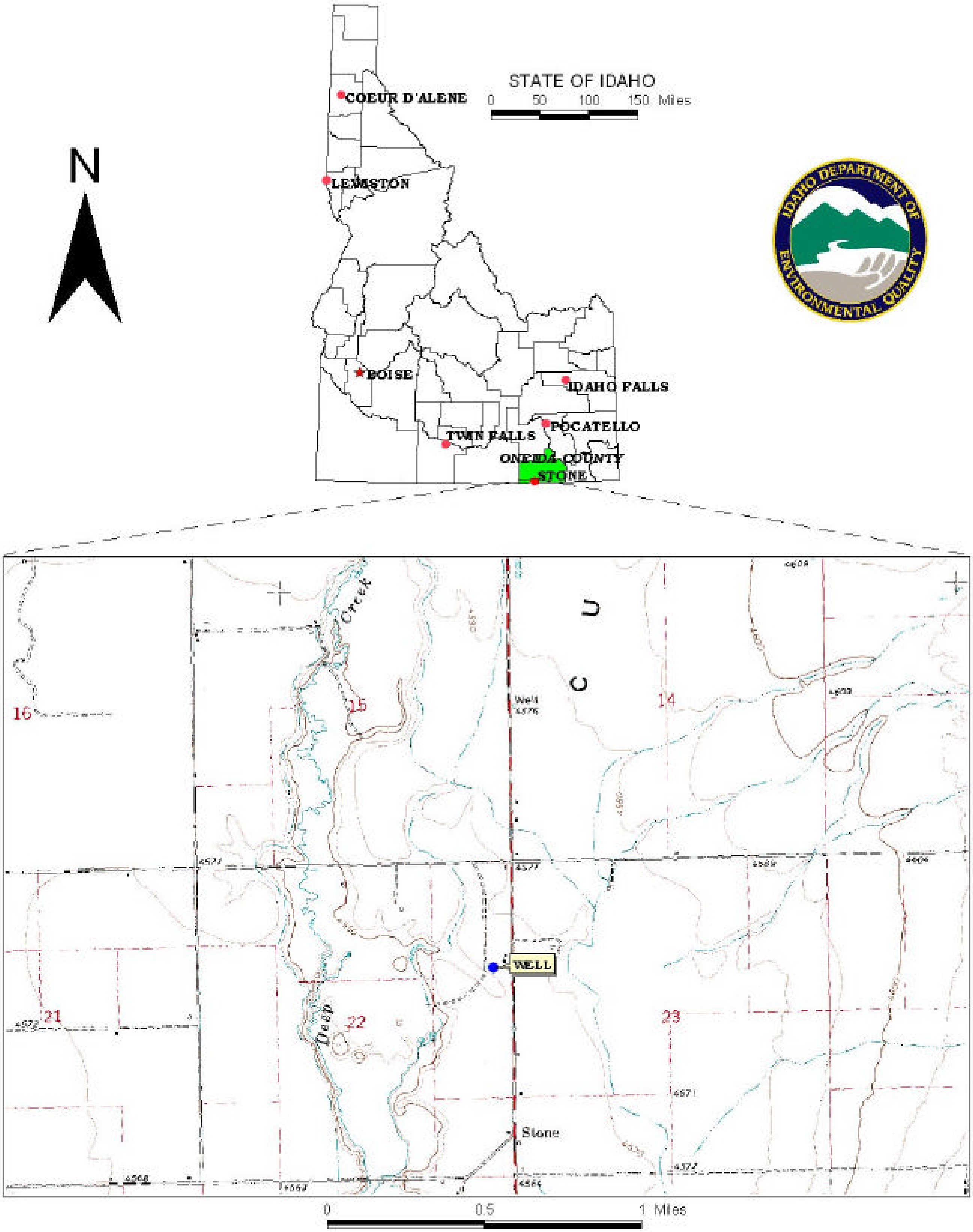
The delineated source water assessment areas for the Stone Elementary School well trends in a northern direction and is elongated and conical in shape. The length of the delineation is approximately 6 miles long and 3 miles wide (Figures 2). The actual data used by WGI in determining the source water assessment delineation areas are available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act. Furthermore, these sources have a sufficient likelihood of releasing such contaminants into the environment at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Field surveys conducted by DEQ and reviews of available databases identified potential contaminant sources within the delineation areas. These sources include Stone Reservoir, Deep Creek, a campground, and Stone Road.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

FIGURE 1. Geographic Location of Stone Elementary School Dist. 351



Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in April 2002. The first phase involved identifying and documenting potential contaminant sources within the Stone Elementary School source water assessment areas through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to validate the sources identified in phase one and to add any additional potential sources in the area. This task was undertaken with the assistance of Ms. Jeanne Terry. At the time of the enhanced inventory, no additional potential contaminant sources were found within the delineated source water area. Maps with well locations, delineated areas, and potential contaminant sources are provided with this report (Figure 2). The potential contaminant source(s) have been listed in Table 1.

Table 1. Stone Elementary School, Well #1, Potential Contaminant Inventory

Site #	Source Description	TOT Zone (years)	Source of Information	Potential Contaminants[1]
	Deep Creek	0-10	GIS Map	IOC, VOC, SOC, Microbials
	Stone Reservoir	3-6; 6-10	GIS Map	IOC, VOC, SOC
	Stone Road	0-10	GIS Map	IOC, VOC, SOC, Microbials
	U.S. Curlew Campground	3-6	GIS Map	IOC, VOC, SOC

[1] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

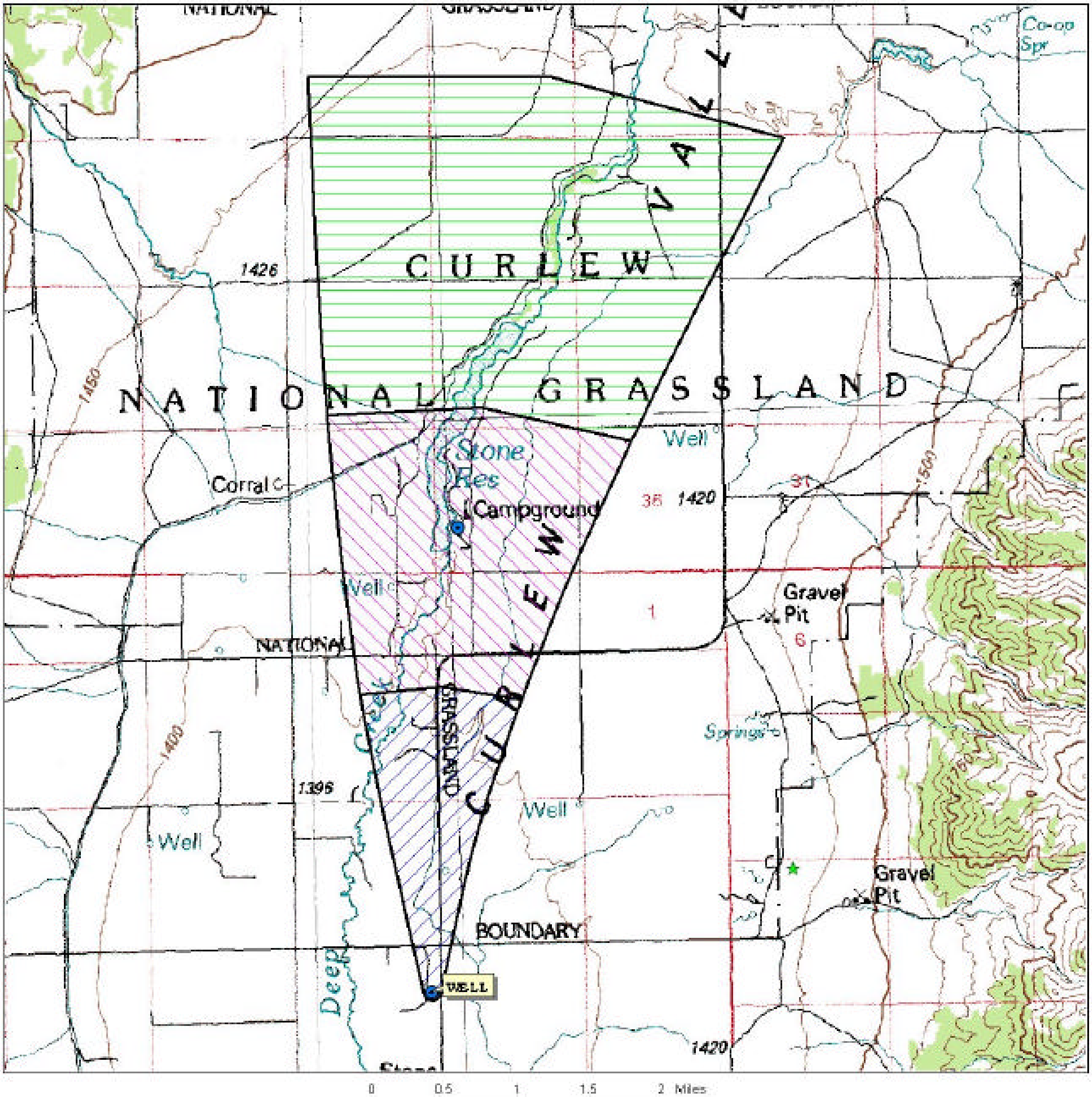
Section 3. Susceptibility Analyses

The susceptibility of the well to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for the well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors. These factors are surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquitard) above the producing zone of the well. Slowly draining soils such as silt and clay have better filtration capabilities and therefore are typically more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

FIGURE 2. Stone Elementary School Dist 351 Delineation Map and Potential Contaminant Source Locations



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WELL

Hydrologic sensitivity was rated moderate for the well (Table 2). This is based upon poor to moderate drained soil classes as defined by the National Resource Conservation Service (NRCS). The well log indicates the vadose zone (approximately 26 feet in depth) is comprised predominantly of yellow clay. The depth to first ground water was encountered at 27 feet below ground surface (bgs) and the static water level was recorded at 38 feet bgs in August 1984. In addition, the well lacks 50 feet cumulative thickness of low permeability material that helps to reduce the downward movement of contaminants.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The system construction score was rated high for the well (Table 2). The 2001 sanitary survey states the wellhead does not have a well casing vent. The purpose of the vent is to vent the space between the casing and the column and prevent a vacuum from forming when the well turns on and draws down the water table. A vacuum could draw in contamination through joints or leaks in the casing or cause the well to slough. Also, there was insufficient information available to determine if the surface seal is in good condition. The well log indicates the annular seal extends 20 feet into clay material and the well casing extends 139 feet into gravel material. The well is located outside a 100-year floodplain.

The Idaho Department of Water Resources (IDWR) *Well Construction Standards Rules (1993)* require all public water systems to follow DEQ standards. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works (1997)* during construction. Under current standards, all PWS wells are required to have a 50-foot buffer around the wellhead and if the well is designed to yield greater than 50 gallons per minute (gpm) a minimum of a 6-hour pump test is required. These standards are used to rate the system construction for the well by evaluating items such as condition of wellhead and surface seal, whether the casing and annular space is within consolidated material or 18 feet below the surface, the thickness of the casing, etc. If all criteria are not met, the public water source does not meet the IDWR Well Construction Standards. In this case, there was insufficient information available to determine if the well meets all the criteria outlined in the IDWR Well Construction Standards.

Potential Contaminant Source and Land Use

The potential contaminant sources and land use within the delineated zones of water contribution are assessed to determine the well's susceptibility. When agriculture is the predominant land use in the area, this may increase the likelihood of agricultural wastewater infiltrating the ground water system. Agricultural land is counted as a source of leachable contaminants and points are assigned to this rating based on the percentage of agricultural land. The land use within the area surrounding the Stone Elementary School well is predominately agriculture land.

In terms of potential contaminant sources, the well rated moderate for IOCs (i.e., nitrates), VOCs, (i.e. petroleum related products), SOCs (i.e., pesticides), and low for microbials (i.e., fecal coliform) (Table 2).

Potential contaminant sources found within the delineated areas include the Stone Reservoir, Deep Creek, Stone Road, and a campground. The location of these potential contaminant sources and delineated TOT zones for the well is shown on Figure 2.

Final Susceptibility Ranking

A detection above a drinking water standard MCL or any detection of a VOC or SOC at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, potential contaminant sources within 50 feet of a wellhead will automatically lead to a high susceptibility rating. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) contribute greatly to the overall ranking.

Table 2. Summary of Stone Elementary School Susceptibility Evaluation

Drinking Water Source	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Potential Contaminant Inventory and Land Use				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well	M	M	M	M	L	H	M	M	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

In terms of total susceptibility, the well rated moderate for all contaminant categories. System construction scores rated high and hydrologic sensitivity scores rated moderate. Potential contaminant inventory and land use scores were moderate for IOCs, VOCs, SOCs, and low for microbials.

In November 1995, total coliform bacteria were detected at three sample locations in the distribution system. Subsequent samples have not detected the presence of total coliform bacteria in the distribution system. The inorganic chemicals arsenic, barium, cadmium, chromium, fluoride, mercury, nitrate, and sodium have been detected in the drinking water, but at levels below the MCL for each chemical. Arsenic has been measured in the well in concentrations of 9 µg/L in November 1998 and 6 µg/L in September 2001. No volatile organic chemicals or synthetic organic chemicals have been detected in the drinking water.

Section 4. Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For Stone Elementary School, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). No potential contaminants (pesticides, paint, fuel, cleaning supplies, etc.) should be stored or applied within 50 feet of the well. Land uses within most of the source water assessment area are outside the direct jurisdiction of the Stone Elementary School. Therefore partnerships with state and local agencies, industrial and commercial groups should be established to ensure future land uses are protective of ground water quality. Educating employees and the public about source water will further assist the system in its monitoring and protection efforts.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation contains some urban and residential land uses. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture and the Oneida County Soil and Water Conversation District.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Pocatello Regional DEQ Office	(208) 236-6160
State DEQ Office	(208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Ms. Melinda Harper at (208) 343-7001 or email her at mharper@idahoruralwater.com for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund@ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RCRA – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

References Cited

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Attachment A

Stone Elementary School Susceptibility Analysis Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5	Low Susceptibility
6 - 12	Moderate Susceptibility
$\geq$ 13	High Susceptibility

Ground Water Susceptibility Report Public Water System Name: STONE ELEMENTARY SCHOOL DIST 351 Public Water System Number 6360009 WELL SOURCE

1. System Construction

		SCORE
Drill Date	8/11/84	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	2001
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	NO	1
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0
Total System Construction Score		5

2. Hydrologic Sensitivity

Soils are poorly to moderately drained	YES	0
Vadose zone composed of gravel, fractured rock or unknown	NO	0
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
Total Hydrologic Score		3

3. Potential Contaminant / Land Use - ZONE 1A

		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2

Potential Contaminant / Land Use - ZONE 1B

		IOC Score	VOC Score	SOC Score	Microbial Score
Contaminant sources present (Number of Sources)	YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum		4	4	4	4
Sources of Class II or III leacheable contaminants or	YES	6	2	2	
4 Points Maximum		4	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Greater Than 50% Non-Irrigated Agricultural	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		10	8	8	6

Potential Contaminant / Land Use - ZONE II

		IOC Score	VOC Score	SOC Score	Microbial Score
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	25 to 50% Irrigated Agricultural Land	1	1	1	
Potential Contaminant Source / Land Use Score - Zone II		4	4	4	0

Potential Contaminant / Land Use - ZONE III

		IOC Score	VOC Score	SOC Score	Microbial Score
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0
Cumulative Potential Contaminant / Land Use Score		18	16	16	8

4. Final Susceptibility Source Score

	IOC	VOC	SOC	Microbial
4. Final Susceptibility Source Score	12	11	11	11
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate